Nascom Block Phase Out Study
Status Review

L. Muzny
CSOC System Engineering
larry.muzny@csoconline.com
281-853-3327

Nascom Block Phase Out Study
Status Review

- **Overview**
  - Joint Study Team investigating the phase out of Nascom block processing
- **Summary Status**
  - CSOC, JPL, and GSFC Team Members have agreed to proceed with CCSDS Space Link Extension (SLE) prime data service for future LEO and DSN missions
    - Current legacy data service to be retained for a transitional period
  - JPL has plan in place to proceed with CCSDS SLE for 2003 and to phase out legacy service by 2003
  - GSFC working plan to provide CCSDS SLE service for SN by 2004
  - GSFC and CSOC working GN upgrade plans
    - Commercial provides will be given the requirements for the data service
    - Working in conjunction with commercialization efforts
  - NASA Space Operations Management Office (SOMO) is working with NASA centers to develop implementation plan

Nascom Block Phase Out Study
Problem Statement

- **The current Nascom IP Transition (IPTX) Multicast Nascom block encapsulation standard is a custom design and is outdated**
  - Continued use of the Nascom block standard requires that NASA maintain custom hardware and software to handle its unique data structure and addressing translation requirements
  - Hampers transitioning to a more robust COTS based ground data communication architecture
  - New missions must either use the IPTX Nascom Block multicast standard or deploy new data service equipment
    - SN prime service is IPTX Nascom (Limited by MDM Design)
    - DSN supports several types of data service which is unique to DSN (modified IPTX data structures)
    - GN Data Service supports several types of data service
  - Many recent missions are proceeding to implement custom data communication designs using a more reliable data service. Examples include:
    - Landsat 7 FEPS at SN
    - EOS FEPS at SN, GN, and Commercial Sites
    - WDISC at SN
    - SMEX FEPS at GN sites
    - DAS at SN
    - DSN proceeding with CCSDS SLE Implementation as their prime service and is planning to phase out legacy data services

Nascom Block Phase Out Study
Objective

- **Establish a NASA wide (JPL, GSFC, MCC, MSFC, etc.) data distribution standard using COTS and Internet protocol stack backed up by a strong NASA policy statement for future missions**
  - Provide Cross Support with all NASA centers and with international agencies
  - Provides requirement basis for replacement or upgrade of current systems using the Nascom block structure: MDM; PTP/SCD; WSC Line Outage Recording, Site Tracking Systems; GN Site; Remote POCC
  - Considers commonality with Commercial Ground Site Providers

Nascom Block Phase Out Study
Major Accomplishments

- **Team Members have agreed to proceed with CCSDS Space Link Extension (SLE) as the prime service for LEO and DSN Missions**
- **JPL team members working with CCSDS to add identified requirements as extensions to the SLE standards**
  - Add capability to support bit stream service (typically required for encrypted data streams) – (Required for Human Space Missions)
  - Create a generic “return” service for handling ground generated messages (such as tracking and ranging)
- **CSOC developed a draft proposal jointly with WSC and GSFC to upgrade Space Network for Nascom Block Phase Out**
- **Team members continuing to support following activities:**
  - Complete evaluation of ongoing legacy missions
  - Develop integrated implementation plan and cost profile
  - Finalize agreement
- **NASA Space Operations Management Office (SOMO) working with Centers Project Operations Plan submissions**

Nascom Block Phase Out Study
Summary

- **NASA Space Operations Management Office (SOMO) has agreed to proceed with CCSDS SLE as the prime data service for future missions and to retain current legacy data service for a transitional period**
- **JPL has a plan to in place to proceed with CCSDS SLE by 2003 and to phase out legacy service by 2003**
- **GSFC is developing a plan to proceed with SLE for SN by 2004**
- **GN upgrade for Nascom Block Phase Out by "TBD"**
  - Commercial providers will be given the requirement for the data service
  - Work in conjunction with commercialization efforts